

advantageously overcome several problems that exist in traditional microfluidic devices. In particular, the present invention overcomes many, if not all, of the problems stated at page 2, line 18 through page 3, line 3, where it is stated:

A current approach to fluidic and microfluidic processing utilizes a number of *microfluidic channels* that are configured with microvalves, pumps, connectors, mixers, and detectors. While devices using micro-scale implementations of these traditional approaches may exhibit at least a degree of utility, vast room for improvement remains. For instance, pumps and valves used in traditional fluidic transportation are mechanical. Mechanical devices, particularly when coupled to thin microchannels, may be *prone to failure or blockage*. In particular, thin channels may become narrowed or partially-blocked due to buildup of channel contamination, which, in turn, may lead to mechanical failure of associated devices. Current microfluidic devices also *lack flexibility*, for they rely upon a *fixed pathway* of microchannels. With fixed pathways, devices are limited in the number and type of tasks they may perform. Also, using fixed pathways makes many types of metering, transport, and manipulation difficult. With traditional devices, it is *difficult to partition* one type of sample from another within a channel.

[(emphasis added)].

Involving the ability for programmable movement along arbitrarily chosen paths, the present invention also provides for great flexibility. In particular, the invention allows one to programmably move particles so that their paths have

... any shape about the reaction surface. Arbitrarily chosen paths are *not limited to movements that are predefined*. Arbitrarily chosen paths may be modified in an unlimited manner about the reaction surface and may hence trace out any pattern.

[See specification, page 5, lines 25-29 (emphasis added)].

These features of amended independent claims 1 and 20 are not disclosed or suggested in the cited art of the parent patent application, taken alone or in any combination.

## 2. *Tracking Individual Packet Positions for Motion along Arbitrarily Chosen Paths*

Independent claims 1 and 20 recite that the positions of individual packets may be tracked. The individual packet positions subsequently may be used to ensure that one or more

packets move along arbitrarily chosen paths. As may be gleamed from the specification, these features represent a significant advancement over traditional technology, allowing for very flexible microfluidic processing capabilities.

These features are absent from the cited art of the parent patent application, taken alone or in any combination.

#### CONCLUSION

Applicants respectfully request that all claims pending in this continuation patent application be allowed to swiftly pass to issuance.

Should the Examiner desire to discuss the subject matter of this preliminary amendment, please contact the undersigned attorney at 512-536-3018.

Respectfully submitted,

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